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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,117	07/10/2003	Michael Robert Samuels	AD6877USNA	2602

23906 7590 02/14/2005

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

SADULA, JENNIFER R

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/617,117

Applicant(s)

SAMUELS ET AL

Examiner

Jennifer R. Sadula

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/16/03, 12/15/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The IDS submitted 12/15/03 contains duplicates listings of references considered on the IDS Submitted 10/16/03. These references have been crossed off as considered previously. Furthermore, the last three foreign publications have not been considered on this submission as they were not received by this office. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants claim any composition comprising an LCP, any aramid and any perfluorinated polymer however such is not supported by the specification. Furthermore in the specification the composition must be of a specified dielectric range otherwise Applicants have acknowledged in the specification that such a composition as currently claimed exists.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Hoiness, US Patent 5,811,042.

Applicants claim a composition comprising about 5-25% by weight of particulate aramid, 5-40% by weight of particulate perfluorinated polymer, 0-15% by weight hollow glass or quartz spheres and the remainder liquid crystal polymer (LCP) wherein the percentage by weight is based on the total amount of only these items listed above. Examiner notes that in accordance with this claim the claim has been searched based upon the composition containing no other compounds (essentially, as though the claim were “consisting essentially of”) as no other compound can be present in this claimed composition.

Hoiness teaches a composite having a combination of thermoplastic or thermoset resin, a fiber reinforcing material and aramid particles (abstract) wherein the “particulate” are fibers (3:14-30) in the form of floc or pulp (3:47-55). Column 4 details the aramid fibers and particles wherein some of the aramids listed are liquid crystalline in nature, however the thermoplastic resins listed are also LCP in nature as they exhibit anisotropic behavior (see also example 1 compositions). With regard to claims 7 and 9 Hoiness teaches that the aramid is preferably poly(p-phenylene terephthalamide) (3:41-46). With regard to claims the aramid being “powder”,

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Hoiness teaches the composition substantially as claimed however does not specifically teach that the materials for use in the resin are indeed anisotropic in nature (thereby making them LCP).

Swirbel teaches multilayered printed circuit boards utilizing a composite material for the purposes of gaining a low dielectric constant wherein the resin materials are such as SPEEDBOARD (a polyfluorocarbon resin from W.L. Gore, Inc.) which has a low loss factor (0.008) and low dielectric constant (2.7), liquid crystal polymers, or aramid resins can also be used with efficacy. Swirbel teaches these materials to be equivalents.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to interpret either the aramids of Hoiness or the perfluorinated resins of Hoiness utilized in the ratios of Hoiness as encompassing LCP carrier materials as these materials are taught by Swirbel to be equivalents. Furthermore Swirbel teaches these materials to be desirable when a low dielectric constant for the overall composite resin is desirable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 571.272.1391. The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571.272.1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Applicants state a size requirement on page 3 of the specification which coincides with the sizes of the aramids of Hoiness in column 6 (and 7:12-20).

The thermoplastic materials of Hoiness include fluoropolymers as the matrix resin which comprises between 10-95% by weight of the total composite (3:4-13). With regard to claim 4 the fluoropolymers are those such as TEF and FEP and the like (3:3). Furthermore the fiber reinforcing materials which represent about 1-60% by weight may also be fluorinated (column 5). When this is the case and the thermoplastics are interpreted as the LCP material the Examiner notes that the materials are excellent for use with fire retardancy. Glass fillers may be present (6:59-7:11). The ratios of materials are listed in column 1, lines 57-65. With regard to claims 10-15 the composite materials of Hoiness are for gasketing and other composite friction uses.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

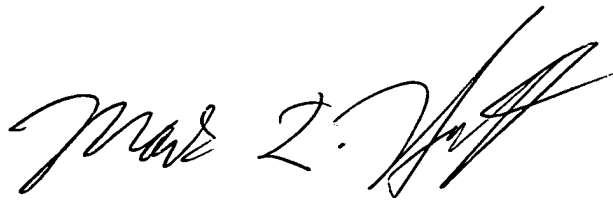
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoiness, as applied above, further in view of Swirbel et al., U.S. Patent No 6,388,202 ("Swirbel").

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRS
21 January 2005

A handwritten signature in black ink, appearing to read "Mark F. Huff", with a stylized flourish at the end.

**MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700**